SANTA CLARA VALLEY WATER DISTRICT

ENGINEER'S REPORT ON
PROPOSED FLOOD PROTECTION MEASURES
ON
LOWER SILVER CREEK
PHASE I
(CAPITOL EXPRESSWAY TO CUNNINGHAM AVENUE)
EAST ZONE, E-1
PROJECT NO. 4026

September 1975

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(CAPITOL EXPRESSWAY TO CUNNINGHAM AVENUE)

EAST ZONE, E-1

PROJECT NUMBER 4026

September 1975

Report prepared by Design and Construction Unit staff

John McGuire	Project Engineer
Bruce Wilson	Division Engineer Design Division
Edwin Ferguson	Head, Design Branch

George Korbay
Design and Construction Manager

John T. O'Halloran General Manager	Lloyd C. Fowler Chief Engineer

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Santa Clara Valley Water District

5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118
TELEPHONE (408) 265-2600

September 16, 1975

Board of Directors
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Gentlemen:

Transmitted herewith is the Engineer's Report on Proposed Flood Protection Measures on Lower Silver Creek (Capitol Expressway to Cunningham Avenue), Project Number 4026, in Zone E-1 (East) of the Santa Clara Valley Water District. This project is the first phase of several proposed projects on Lower Silver Creek from Coyote Creek to Cunningham Avenue.

This reach of Silver Creek has been identified as being the most deficient in flood carrying capability. It is proposed to raise that capacity to approximately the same capacity as exists downstream by excavation of the channel and by reconstruction and enlargement of inadequate culverts at Murtha Drive, Ocala Avenue and Cunningham Avenue. This will provide a 1500 cubic-foot-per-second flow capacity which is approximately equivalent to the capacity of the remainder of the channel downstream.

It is the recommendation of the Engineer that flood protection, at the proposed level, be provided to the area by construction of the project. Estimated cost of the proposed project is $726,000, which can be financed from East Zone tax revenues.

I concur in the project as proposed and recommend that a public hearing be held as a prerequisite to the construction of the project.

Sincerely yours,

John T O'Halloran

John T. O'Halloran
General Manager

Attachment

AN EQUAL OPPORTUNITY EMPLOYER

INTRODUCTION

Purpose of Proposed Project

The purpose of the proposed project is to upgrade the capacity of Lower Silver Creek between Captiol Expressway and Cunningham Avenue equal to the capacity of Lower Silver Creek between Coyote Creek and Capitol Expressway.

The proposed project (Phase I) has been rated number one in priority for Lower Silver Creek. This rating of the proposed Phase I project conforms with the District's policy of assigning the highest priority to projects that will result in preventing the greatest potential damage for the dollars invested.

The proposed project is the first step toward the goal of providing "1 percent flood" protection to the highly urbanized lands now occupied by about 33,900 people.

The District is currently planning a project that will ultimately increase the capacity of the creek so that it will convey the 1 percent flood. A proposed 1 percent flood protection project will be the subject of a subsequent report.

Location of Lower Silver Creek

Lower Silver Creek is located in the East Zone of the Santa Clara Valley Water District. The natural watershed is partly in the City of San Jose with the major portion in the unincorporated area of Santa Clara County. Lower Silver Creek confluences with Coyote Creek northerly of Julian Street and southerly of the

Coyote Creek-Bayshore Freeway crossing. The headwaters are located in the foothills east of San Jose. The creek flows generally northerly through the east side of the City of San Jose to its confluence with Coyote Creek. Figure 1 shows the Lower Silver Creek watershed.

Location of Proposed Project

The project which is the subject of this report is located on Lower Silver Creek between Capitol Expressway and Cunningham Avenue; a total project length of 1.8 miles. All of the proposed work is located in the City of San Jose. Figure 2 shows the location of the proposed project.

Previous Construction Projects

Lower Silver Creek has, at various times, been enlarged and realigned along its entire length. In 1955 a major project was undertaken to increase the capacity from Coyote Creek to King Road. Subsequent construction in 1956 and 1958 further improved the flow carrying capacity to Capitol Expressway. Projects constructed in 1970 and 1972 increased the capacity of the creek from Capitol Expressway to the Thompson Creek confluence.

Existing Creek Capacities

As it exists today, the creek will safely convey approximately 600 cubic feet per second from Cunningham Avenue to Capitol Expressway and approximately 1500 cubic-feet-per-second from Capitol Expressway to the Coyote Creek confluence. The creek for

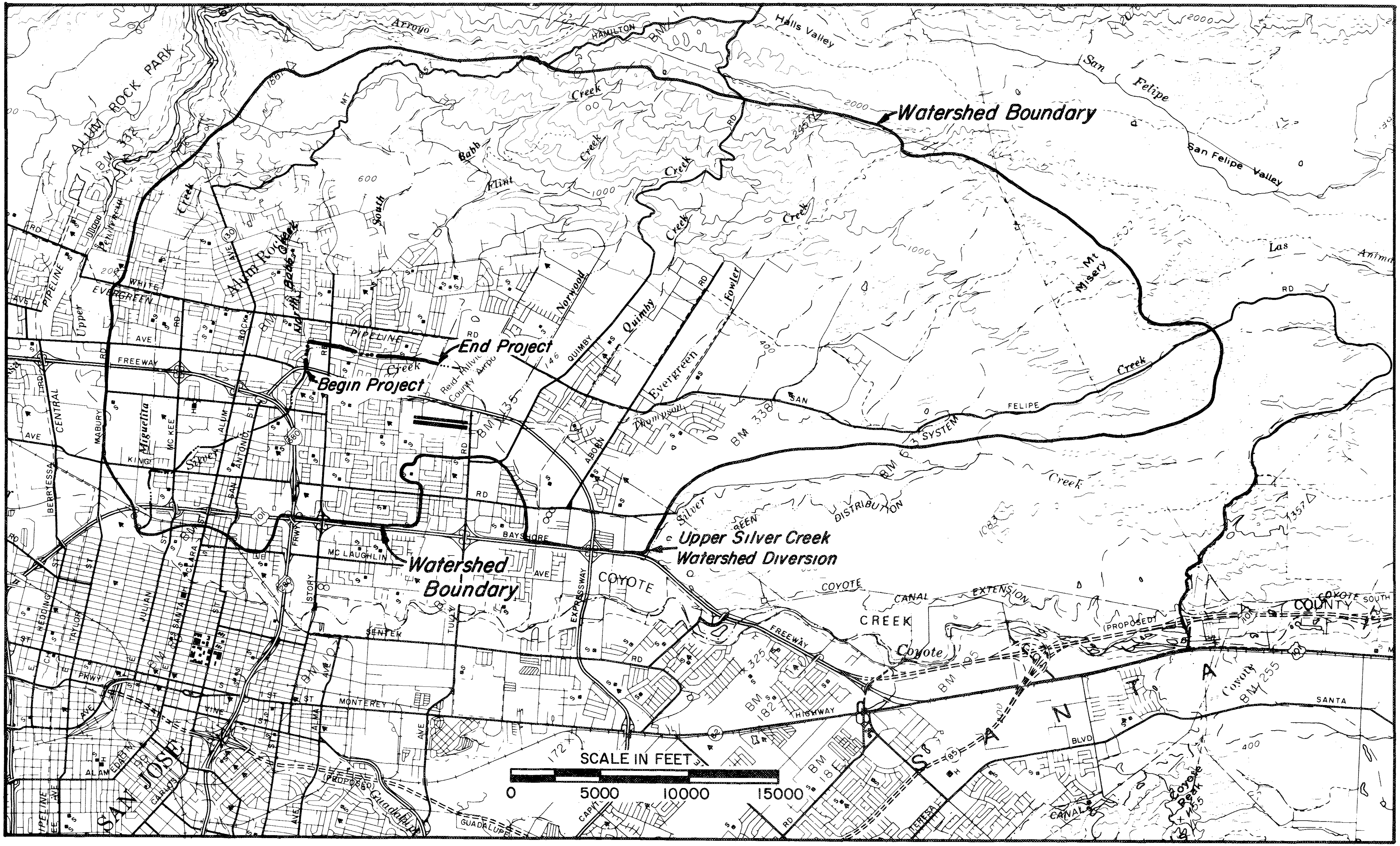


Figure 1
LOWER SILVER CREEK
WATERSHED MAP

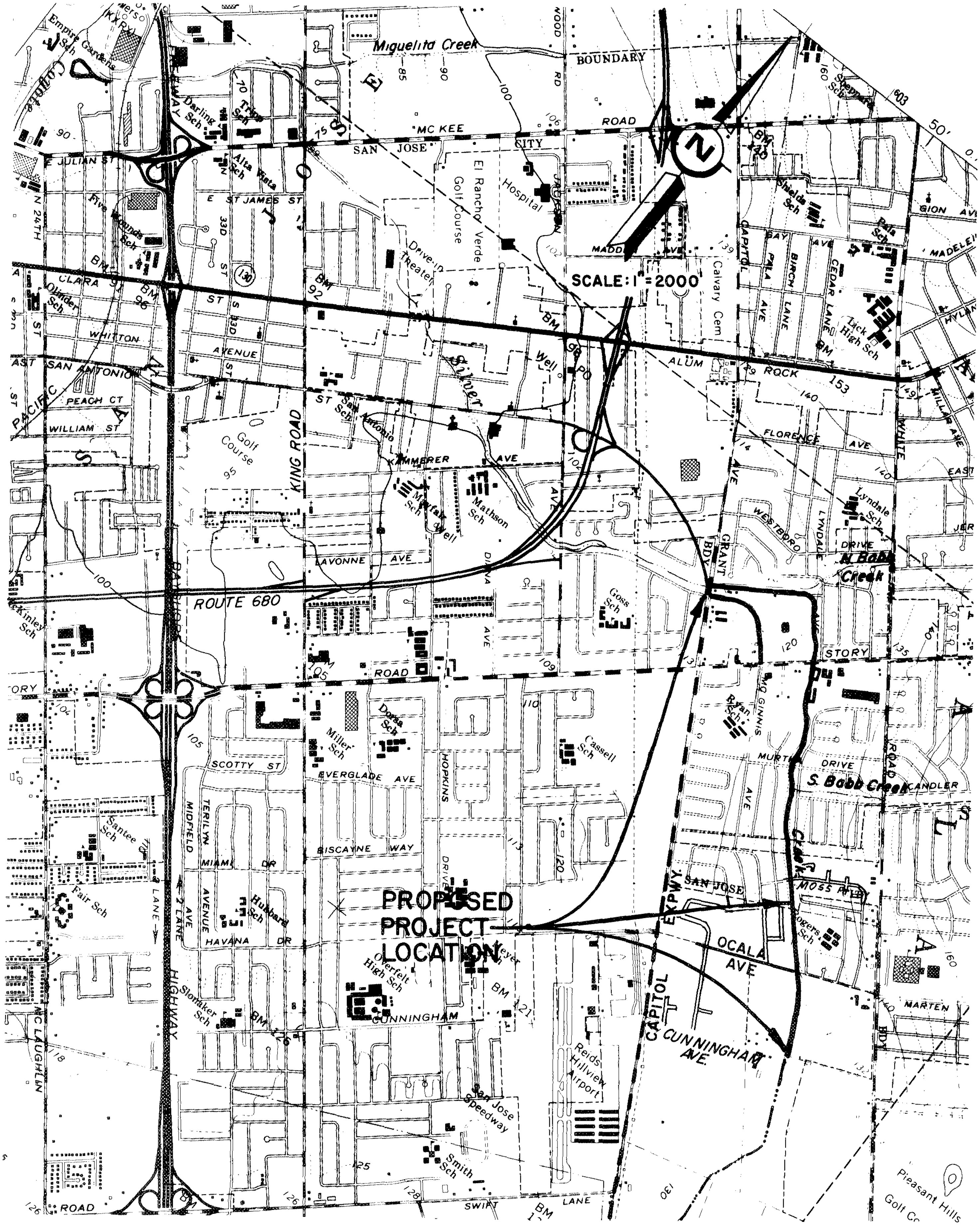


Figure 2-LOWER SILVER CREEK LOCATION OF PROPOSED PROJECT

its entire length does not have the capacity required to safely convey the 1 percent flood.

Existing Bridges and Culverts

There are six roadway crossings within the project limits. The Capitol Avenue box culvert was constructed by the County of Santa Clara as a part of their Capitol Expressway enlargement and realignment project. The Moss Point Drive crossing was constructed by the City of San Jose. A new box culvert was constructed at Story Road by the District as part of an earlier project. All three structures will safely convey the 1 percent flood. The culverts at Murtha Drive, Ocala Avenue and Cunningham Avenue are inadequate. It is proposed that these culverts be replaced with new bridges and that the new bridges be large enough to pass the 1 percent flood.

Contents of This Report

This report will address a first stage project which will increase the capacity of the reach from Cunningham Avenue to Capitol Expressway to 1500 cubic-feet-per-second. Once the project is complete, Lower Silver Creek from Cunningham Avenue to the Coyote Creek confluence will have a uniform capacity that will safely convey approximately 1500 cubic-feet-per-second.

Alternative types of improvements have been studied to develop the most desirable solution to the problem. This report presents the results of these studies and consists of:

1. A general description of the watershed and the flood problems together with general plans delineating the proposed project.

2. A discussion of the criteria used to design the proposed project.

3. A description of the proposed project, plates showing plans, profiles, typical cross sections and rights of way are included.

4. A discussion of alternatives to the proposed project.

5. An estimate of the cost of the proposed project and suggested means of financing these costs.

6. Conclusions and recommendations.

HISTORY OF SILVER CREEK PLANNING

The Santa Clara Valley Water District has been working for many years toward providing flood protection in the Silver Creek basin. Unwise allowance of residential and other development now subjects about 9,000 dwelling units to potential damages from flooding.

A bond issue to fund the reconstruction of Silver Creek failed to pass in 1956.

In 1964 the District attempted to have the project funded under the Federal PL566 program. The Soil Conservation Service declined to fund such a project on the basis that it was more of an urban than an agricultural problem.

In the years prior to 1970, East Zone construction funds were being expended on development related projects on Lower Penitencia Creek, Coyote Creek, Calero Creek, Piedmont Creek and others.

In 1970 a prioritization plan was adopted which designated protection of existing development as the most important criterion for future expenditures. Since that time the criterion for setting project priorities has been more clearly defined by assigning the highest priority to projects that will result in preventing the greatest potential damage for the dollars invested. Silver Creek has been designated as the Number 1 priority in the Zone.

On November 14, 1972, the District Board determined to raise the tax rate in the zone to allow budgeted work to proceed on Silver Creek while providing funds for Berryessa Creek. This action was precluded by passage of the Property Tax Relief Act of 1972 which prohibited a tax increase except upon approval by popular vote.

The District staff was directed in 1973 to study ways to accomplish the Silver Creek and Berryessa Creek work using existing funds, deferrals of loans owed by the District to the City of San Jose and contributions of land and funds from developers. Development of the Norwood Creek watershed was approved by the City of San Jose and the District in 1973 with the proviso that the developers would contribute funds to the Silver Creek project to mitigate the potential increase in flooding from their development. The George Nolte firm had previously (October 1972) been retained by the District to predict the downstream effects of development.

In January 1974 a funding plan (The "9-Year" Plan) was approved by the District Board and the cities of San Jose and Milpitas. The proposed work on Silver Creek was to be carried out as follows:

1. The most deficient reach of the channel would be treated first since it would do no good for the earliest possible protection to enlarge the downstream channel while the upstream channel could overbank and flood the area adjacent to the downstream channel.

2. The second step recommended was to contribute to development of Lake Cunningham. This would most immediately reduce flooding potentials by the effects of reservoir storage.

3. After the first 2 steps, construction of full 1 percent protection works would start at the downstream end of the creek and proceed upstream.

On April 17, 1973 an agreement was executed between the District, the City of San Jose, and "Venture", the developers of the Norwood Creek area. Venture would prepare plans and finance the construction of flood control improvements on Norwood Creek. Norwood Creek is an upstream tributary to Lower Silver Creek. The City of San Jose would collect fees from later developers to partially reimburse Venture. The District adopted a resolution approving the plans for the Norwood Creek improvement project with the condition that the Norwood Creek project not be built unless adequate and appropriate provisions for prior or concurrent downstream improvement measures are taken in the channel of Silver Creek to accept and pass such additional flood flows as may be anticipated to be produced therein by reason of the Norwood Creek project. These downstream measures are estimated to cost $130,000.

In January, 1974, the City of San Jose imposed a moratorium on further development in the Evergreen Planning Area until additional flood protection was provided and until an Evergreen Development Policy could be adopted.

The District staff participated in the work of a city task force charged with producing the development policy. District staff has advised the task force that should development be allowed to proceed after construction of the proposed Phase I enlargement of Silver Creek between Capitol and Cunningham Avenues, there would be an erosion of the interim flood protection.

On August 13, 1975 the Chairman of the District Board of Directors sent a letter to the City of San Jose City Council stating that the District recommends that the "Findings and Recommendations" section of the Evergreen Development Policy should state that the 32-year flood protection (that will result from the project proposed herein) should be maintained without reduction. This may be accomplished by requiring that any further upstream development be accompanied by measures to mitigate increased downstream flooding caused by such development.

The Norwood Creek project, referenced to above, was stopped by court order. This project is considered to be an upstream development that could reduce the level of downstream flood protection. One possible way to maintain the 32-year level of flood protection in the downstream areas is to perform work in the Lake Cunningham Park site as this area now acts as a flood detention basin and could be modified to be more effective.

During 1974 and 1975 the District staff met with many citizens living in the east side of San Jose. A citizens advisory committee was formed and many public meetings were held in the east side of San Jose to obtain public input for the planning of improvements to Lower Silver Creek from Coyote Creek to Cunningham Avenue. The results of these meetings and a plan for the ultimate "1 percent flood" protection for Lower Silver Creek will be the subject of future reports.

DESCRIPTION OF WATERSHED

Lower Silver Creek is located partially in the City of San Jose and partially in the unincorporated area of the County of Santa Clara. It flows northerly from the foothills of the Evergreen Area to an outfall with Coyote Creek near the Coyote Creek - Bayshore Freeway intersection. The length of the watershed is about 12 miles while the width at the downstream end is about 5.5 miles. Almost all of the watershed lies on gentle to steep rolling slopes in the lower regions with the remainder of the watershed in the steep foothills to the east of the City of San Jose. The tributary areas range in elevation from 2500 feet to 66 feet at the confluence of Silver Creek with Coyote Creek.

The Lower Silver Creek Watershed contains the smaller watersheds of Miguelita, North Babb, South Babb, Flint, Ruby and Norwood Creeks, as well as the large watershed of Thompson Creek. Residential development is fairly complete in the northern portion of the watershed with urbanization increasing to the south and east into the foothill areas of the watershed. The most easterly steep foothill portion of the watershed is generally in open space.

Surface conditions along Lower Silver Creek vary from medium to fine textured soils of the alluvial plains. The uppermost regions of the watershed are dominated by upland soils developed on sedimentary, basic igneous, and serpentine rock.

Native growth in the hills of the eastern portion of the watershed consists of scattered oak and madrone trees with underlying brush and grass. At lower levels, the watershed is a combination of orchard land and residential development extending to Capitol Expressway. From Capitol Expressway to the confluence with Coyote Creek the watershed is highly urbanized.

FLOODING PROBLEM

Historically, floodwaters have covered the area adjacent to the channel primarily westerly to Bayshore Freeway. The floods of 1952, 1955, 1958 and 1967 caused considerable damage to existing houses and businesses. Figure 3 shows the extent of flooding that could occur under existing conditions from the flood that has a one percent chance of happening in any year.

Serious bank erosion has occurred in portions of the creek within the project area.

The northerly urbanized area of the watershed is subject to increasing flood hazard as urbanization of the upper watershed continues in a southeasterly direction. The area upstream of Cunningham Avenue to near Norwood Avenue (Cunningham Lake Area) floods on a very frequent basis. It is a natural basin into which overland waters flow before entering Lower Silver Creek. Flooding of this basin and the overtopping of Cunningham Avenue and Capitol Expressway will cause extensive damage to private residences northerly of Cunningham Avenue and westerly of Lower Silver Creek.

The existing channel is capable of conveying approximately 600 cfs before significant flooding begins. As the streamflow increases beyond this level, flooding would occur as floodwaters overtop Cunningham Avenue. The capacity of the existing culverts is limited to 600 cfs. The floodwaters would flow northwesterly

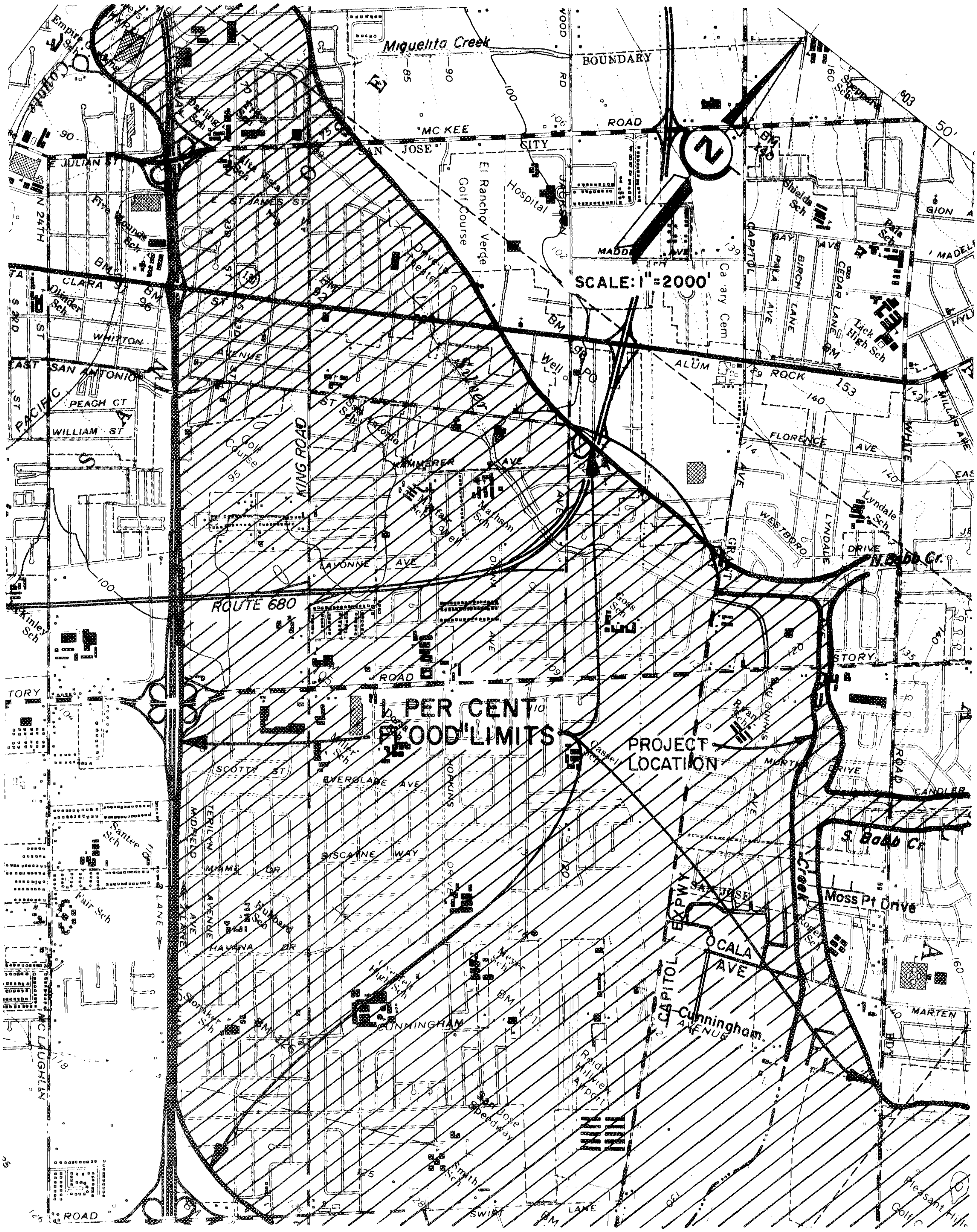


Figure 3-LOWER SILVER CREEK "1 PER CENT FLOOD" MAP

and begin to flood a low lying area in the vicinity of Ocala and Capitol Avenues. At a flood flow of 1500 cubic feet per second, the 3.1 percent flood level, the entire area downstream of Cunningham Avenue shown on Figure 4 would be flooded. Flooding depths would range up to about two feet. The total area inundated would be approximately 1300 acres. Homes and commercial properties within the flooded area would sustain serious damage. Approximately 3700 people currently live within the floodable area.

The proposed project is designed to provide interim flood protection until an ultimate flood control project can be constructed on Silver Creek. The ultimate project, which will be the subject of a future planning study, will provide 1 percent flood protection along Silver Creek. The "1 percent flood", also referred to as the "100-year flood", is the largest peak discharge in the creek which could be expected to be equaled or exceeded on an average of once in 100 years over a long period of time. It is the peak discharge which has a one percent chance of being equaled or exceeded in any one year. The "1 percent flood" or "100-year flood" is the standard level of protection adopted by the Santa Clara Valley Water District. Until such time as the ultimate (1 percent flood) project is completed a serious flood threat still exists along Silver Creek. Figure 3 shows the estimated limit of flooding for the 1 percent flood on Silver Creek. Approximately 33,900 people live within the area floodable by the "1 percent flood".

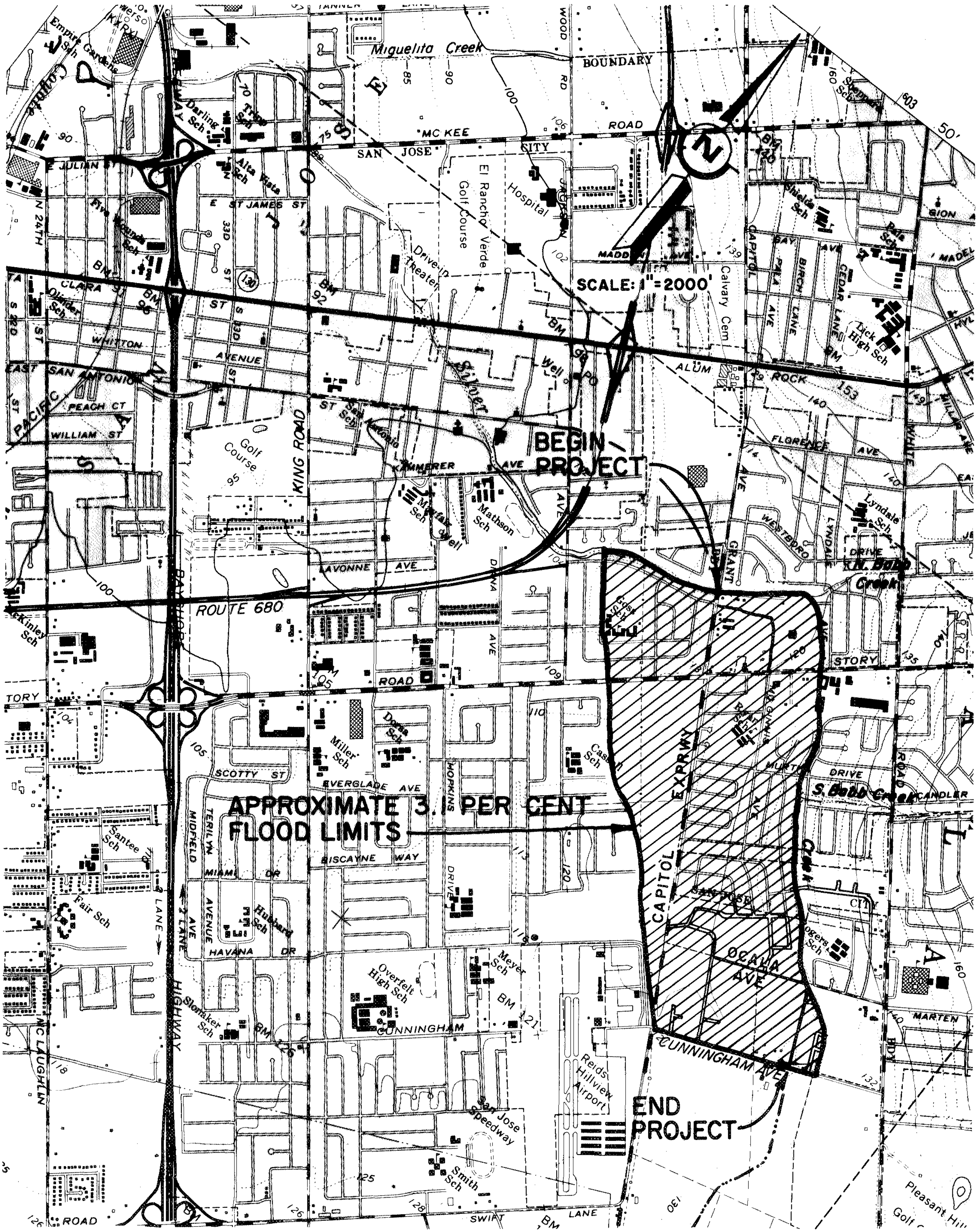


Figure 4—LOWER SILVER CREEK 3.1 PER CENT FLOOD MAP FOR EXISTING UPSTREAM CONDITIONS

DESIGN FLOOD

The proposed flood control project has been designed to increase the capacity of the reach of Silver Creek from Capitol Expressway upstream to Cunningham Avenue to a capacity more closely equal to the existing capacity of the reach from Coyote Creek confluence to Capitol Expressway. The proposed project will increase the capacity of the entire creek system so that it will safely convey the "3.1 percent flood". The "3.1 percent flood", also referred to as the "32-year-flood" is the largest peak discharge in the creek which could be expected to be equaled or exceeded on an average of once in 32-years over a long period of time. It is the peak discharge which has a 3.1 percent chance of being equaled or exceeded in any one year. For Silver Creek below Cunningham Avenue, the 3.1 percent flood has been calculated to be 1500 cubic feet per second (cfs).

The 3.1 percent flood has been computed based upon the level of development and channel improvement that currently exists in the tributary watershed. If all upstream tributaries were improved so that they conveyed all flood waters to Silver Creek, and if the upstream tributary watersheds were developed to their maximum holding capacity, in accordance with the City of San Jose land use policies, the level of flood protection provided by the proposed project would be reduced although the flow rate would remain the same. Protection would be eroded from the 32-year flood level to the 20-year flood level. There is a 3.1

percent chance in any one year of flooding for the existing level of development and channel improvement in the upstream watershed. If full development was allowed in the upstream watershed and all channel improvements were constructed in the upstream tributaries there would be a 5 percent chance of flooding (20-year flood) along lower Silver Creek in any one year. The 3.1 percent flood discharge at the existing upstream conditions and the 5 percent flood discharge for the possible future upstream development is the same. That discharge is 1500 cubic feet per second and Figure 4 shows present flooding which would occur if the proposed project were not implemented.

DESIGN CRITERIA

The criteria used in the design of the proposed interim flood control project on Lower Silver Creek follow accepted engineering standards. Evaluations of alternatives for the project reach from Capitol Expressway to Cunningham Avenue were performed. Bridge designs were based on estimates of construction costs and aesthetic appearances. Channel designs were based on economic and increased flood protection considerations.

The proposed project will provide a level of protection to safely convey 1,500 cubic feet per second within the channel. The proposed bridges at Murtha Drive, Ocala Avenue and Cunningham Avenue, however, were designed to pass the one percent flood. The roadway widths were designed to the standards required by the City of San Jose. The design flood flows meeting the one percent flood standard for Lower Silver Creek were computed using the results of a regional flood frequency hydrologic analysis. This multiple correlation analysis, based on historic precipitation data from gaged watersheds, was utilized to determine the peak flood flow.

The design flows thus obtained for all of Silver Creek are as follows:

TABLE 1

DESIGN FLOOD FLOWS

Location	One Percent Frequency Design Flow (Cubic Feet Per Second)
At confluence with Coyote Creek to Capitol Expressway	5660
At Capitol Expressway downstream of South Babb Creek to Cunningham Avenue	4590
At Cunningham Avenue to a point downstream of Norwood Creek	3580
At a point downstream of Norwood Creek to confluence with Thompson Creek	3620
At confluence with Thompson Creek	3100
At King Road (upstream crossing)	220

DESCRIPTION OF THE PROPOSED PROJECT

The proposed construction on Lower Silver Creek extends over a length of about 9400 feet in the City of San Jose. The work consists of constructing a trapezoidal earth channel and the replacement of three street crossings with bridges. The channel will be excavated from Capitol Expressway to Cunningham Avenue. Most of the right of way needed for the project is owned by the District, however, additional right of way is required from Ocala Avenue to Cunningham Avenue. Slope protection will be installed at bridges and other points of possible serious erosion. Gabion rock filled baskets will be installed at the North Babb Creek confluence. The existing road crossings at Murtha Drive, Ocala Avenue and Cunningham Avenue will be removed and replaced with full-sized bridges capable of passing the 1 percent flood. Design criteria for the traffic way on each of the three bridges is in conformance with City of San Jose standards.

Local drainage outfalls will be reconstructed at their outfall points on the newly excavated channel. All interfering underground utilities at Murtha Drive, Ocala Avenue and Cunningham Avenue will be relocated out of the way of the proposed project and all future channel construction.

The road grades at the three street crossings will have to be raised. The raising is caused by the structural thickness of the bridges and the hydraulic constraints. Murtha Drive will be raised about 2.5 feet, Ocala Avenue will be raised about 1.5 feet and Cunningham Avenue will be raised about 0.8 feet. This raising will adversely affect several parcels in the vicinity of each crossing. The cross streets at Farringdon Drive and Sundown Lane on Murtha Drive will not be affected. Surface treatment of the concrete bridges as well as guardrails, handrails, and electroliers will be aesthetically designed to improve the visual effect of the structures.

Landscaping will be installed at all available locations along the project reach that will not be affected by the ultimate (1 percent) project.

Figure 2 shows the location and topographic map of the project.

GENERAL DESCRIPTION OF LANDS PROPOSED TO BE TAKEN

The District presently owns about 15 acres of right of way, either in fee or easement, throughout the project length. No additional right of way is needed from Capitol Expressway to Ocala Avenue. Three parcels are needed from Ocala Avenue to the upstream end of the project, southerly of Cunningham Avenue. These parcels are generally described as: a strip of land along the east side of Lower Silver Creek just southerly of Ocala Avenue comprising about 0.50 acre; a strip of land on the westerly side of the channel just northerly of Cunningham Avenue comprising about 0.18 acre; a block of land on the westerly side of the channel and southerly of Cunningham Avenue comprising about 0.14 acre. The total additional area to be acquired for the proposed project is about 0.82 acre.

ALTERNATIVES INVESTIGATED

During the preparation of this Engineer's Report for Lower Silver Creek, from Capitol Expressway to Cunningham Avenue, three alternatives were studied for the three bridge crossings which would provide flood protection and be compatible with the existing and the proposed developments for the area. Three alternatives were studied for the channel construction. The bridge construction and the channel construction can be viewed separately since the former is designed for the one percent flood protection and the latter is designed for a lesser level of protection.

The alternatives developed for the bridge crossings were all based on the assumption that the one percent flood protection will eventually be provided along Lower Silver Creek. The do-nothing alternative is discussed under the channel alternatives which were studied. The following table lists the total construction costs for all three bridges investigated.

TABLE 2
BRIDGE ALTERNATIVE COSTS

Description	Cost
Reinforced concrete Box Culverts	$248,000
Minimum Length Bridges with Vertical Abutments	616,000
65-Foot Box-Beam Clear Span Bridges	374,000

The 65-foot clear span box beam was chosen because it is the most aesthetic and is the least expensive of the two bridges investigated. Although the box culvert is the least expensive, it is also the least aesthetically pleasing and it severely limits the choices for future channel sections when the final channel section is constructed in future years.

Channel Alternatives

The three channel alternatives investigated were the do-nothing alternative, the full one percent flood capacity channel alternative and the "equal to the downstream capacity" excavated earth channel. The downstream capacity is approximately 1500 cubic feet per second. The do-nothing alternative would not solve the serious flood and erosion problems. The area would continue to be inundated on the average of once every thirteen years or less.

The full-sized channel alternative, capable of containing the one percent flood, was investigated and found to be inconsistent with the need to protect the downstream residences from increased flooding potential of a full-sized upstream project. This makes the full-sized upstream facility unfeasible at this time.

The "equal to the downstream capacity" excavated channel project as proposed will not increase the flooding potential downstream but will increase the protection from flooding at least to the level of the 3.1 percent flood under existing upstream conditions. For the reasons noted, an excavated earth channel capable of conveying 1500 cubic feet per second, with slope protection at points of potential erosion and full-sized bridges, was chosen for the recommended project.

PROJECT FINANCING

The financing of the proposed project will be mainly from the ad valorem tax in the East Zone of the District, however, a portion of the cost for the construction of the three bridges will be borne by the City of San Jose to the extent that street widening betterments are realized.

PROJECT COSTS

Estimates of the construction costs of the proposed channel improvements to Lower Silver Creek, Phase 1 (Capitol Expressway to Cunningham Avenue) are based upon July, 1975 prices. Contingency items are estimated to account for the costs of engineering, construction inspection, advertising, legal fees, and other incidentals. The estimated costs are presented in TABLE 3.

TABLE 3

ESTIMATED PROJECT COSTS

(July 1975 Prices)

Item of Work	Construction (Incl. Conting. @ 15%)	Engineering & Inspection @ 20%	R/W	Total
Channel Construction Capitol to Cunningham	$150,000 (1)	$ 30,000	$30,000	$210,000
Bridges				
Murtha	115,000	23,000	-0-	138,000
Ocala	200,000	40,000	-0-	240,000
Cunningham	115,000	23,000	-0-	138,000
TOTAL	$580,000	$116,000	$30,000	$726,000

(1) Includes $12,000 for landscaping

CONCLUSIONS AND RECOMMENDATIONS

Lower Silver Creek upstream of Capitol Expressway has the potential for flooding approximately 1,300 acres. This area is nearly fully developed. The proposed project between Capitol Expressway and Cunningham Avenue will alleviate flooding caused by the 3.1 percent flood under existing upstream conditions. Full 1 percent flood protection of the entire Lower Silver Creek is the subject of future studies and projects. Probable 3.1 percent flooding depths under existing conditions range from minor street flooding to flooding into first floor levels. The channel throughout the project is seriously undersized and can contain only those floods less than the 3.1 percent frequency. Ongoing and anticipated erosion (in the absence of protective works) has and can be expected to continue to result in losses to adjacent public and private property.

Assessment of these potentials for damage, along with consideration of beneficial and adverse impacts identified in the project environmental impact report, leads to the conclusion that a level of flood protection equal to the downstream channel capacity should be provided to the area.

Assessment of other environmental factors has revealed both beneficial and adverse impacts. Perhaps the most serious adverse impact is that the existence of a riparian and migratory wildlife habitat would be destroyed by the proposed structural and channel works. This habitat has established itself over the last 5 years since the channel was excavated by the District on the existing alignment. In the proposed excavated channel such a habitat could be expected to again reestablish itself.

The most feasible solution, considering the environmental aspects, engineering constraints, the economics, the surrounding urbanization conditions and the mitigation costs is to:

1. Construct an earth trapezoidal channel to contain 1500 cubic feet per second and to landscape where possible.

2. Replace the inadequate culverts at Murtha Drive, Ocala Avenue and Cunningham Avenue with aesthetically designed bridges which will pass the 1 percent flood.

The total estimated cost for the proposed project is $726,000. Most of the land necessary for the project has already been acquired by the District. Additional parcels upstream of Ocala Avenue will be needed. The additional parcels will cost approximately $30,000 and is included in the above project costs. An allowance for landscaping has been included in the estimated construction costs.

Based on these conclusions, it is recommended that the flood control improvements as described herein be approved and that construction be initiated.

Submitted by:

Bruce Wilson

Bruce Wilson
Division Engineer
Design Division

Approval Recommended:

Bruce Wilson

for Edwin Ferguson
Branch Engineer
Design Branch

Approved:

George Korbay

George Korbay
Design and Construction Manager

August 8, 1975

Date

MAP AND GENERAL PLAN

FOR

LOWER SILVER CREEK

PHASE 1

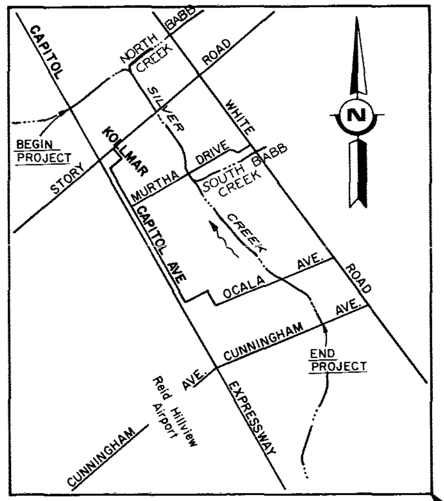
FROM

CAPITOL EXPRESSWAY TO CUNNINGHAM AVENUE

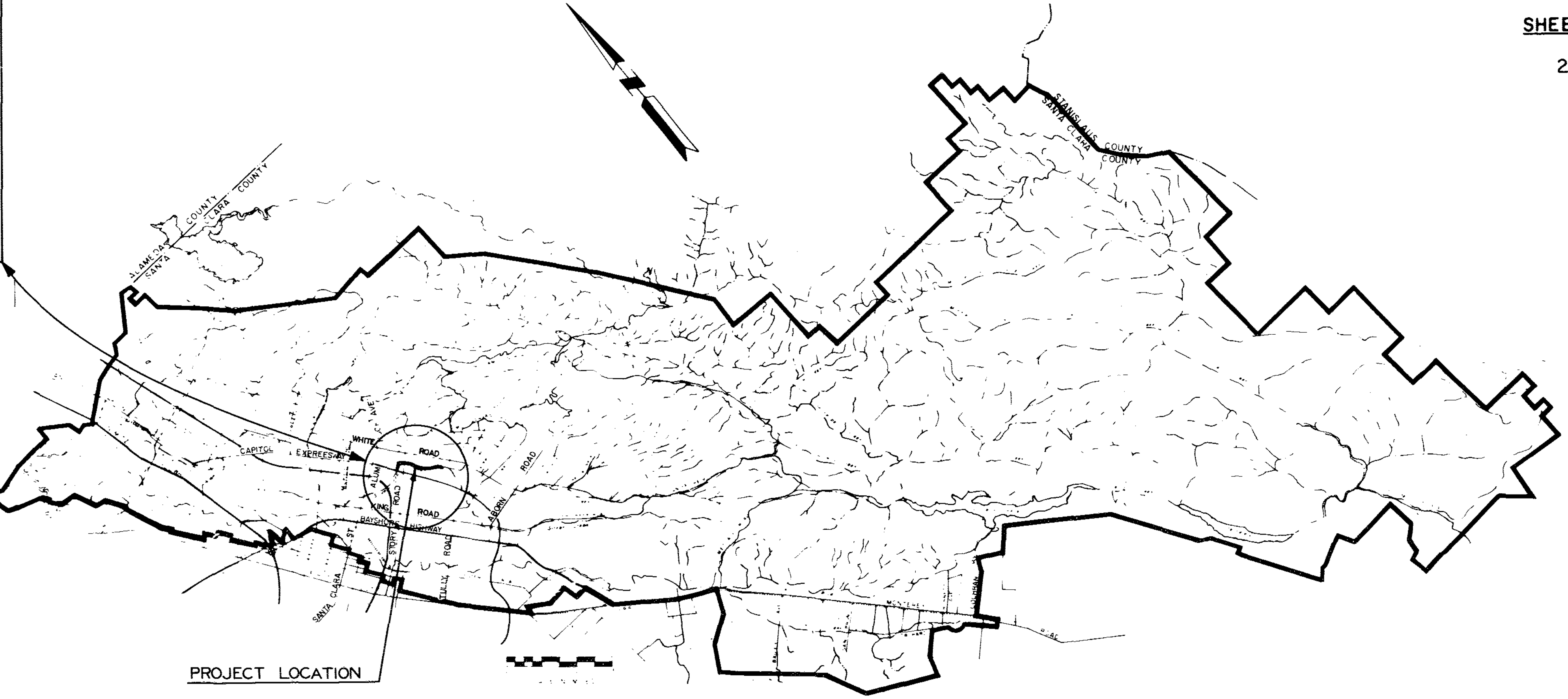
Santa Clara Valley Water District

EAST FLOOD CONTROL ZONE

PROJECT NO. 4026



LOCATION MAP



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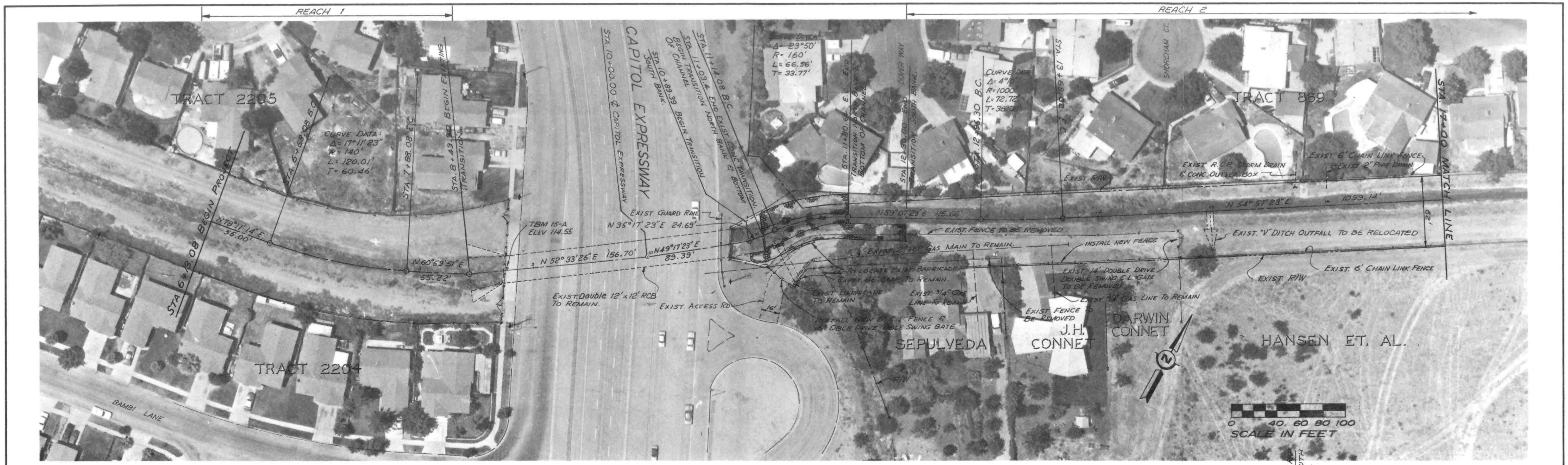
PROJECT APPROVAL:

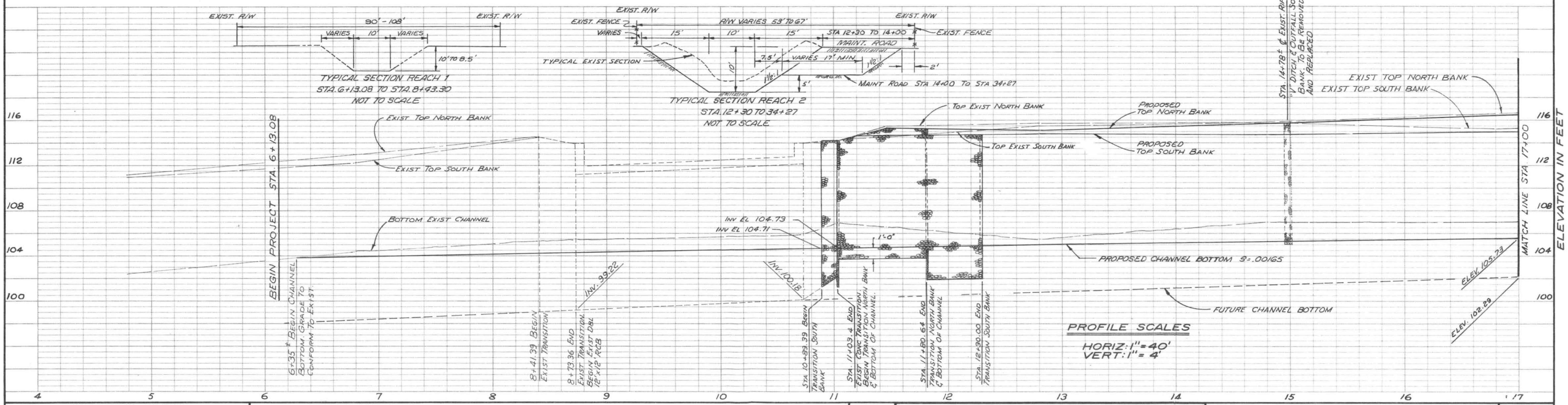
DESIGN AND CONSTRUCTION MANAGER

for George Kabay
CHIEF ENGINEER

DATE: August 8, 1975

GRS


REACH 1
REACH 2
TRACT 2205
TRACT 2204
TRACT 869
BAMBI LANE
CAPITOL EXPRESSWAY
SHOREHAM CT.
DOVER WAY
STA. 6+13.08 BEGIN PROJECT
STA. 6+68.08 B.C.
CURVE DATA: Δ= 17°11'23" R= 140' L= 120.01' T= 60.46'
STA. 7+88.08 E.C.
STA. 8+43.30 BEGIN EXISTING TRANSITION
N78°11'14"E 55.00'
N60°53'51"E 55.22'
TBM 15-A ELEV 114.55
N 52° 33'26"E 156.70'
N49°17'23"E 89.39'
N 35°17'23"E 24.69'
EXIST. DOUBLE 12'x12' RCB TO REMAIN.
STA. 10+00.00 ℄ CAPITOL EXPRESSWAY
STA 10+89.39 BEGIN TRANSITION SOUTH BANK.
STA. 11+03.4 END EXIST CONC TRANSITION. BEGIN TRANSITION NORTH BANK & BOTTOM OF CHANNEL
STA. 11+14.08 B.C.
EXIST GUARD RAIL
EXIST ACCESS RD
16'
CURVE DATA Δ= 23°50' R= 160' L= 66.56' T= 33.77'
STA. 11+80.64 E.C. END TRANSITION NORTH BANK & BOTTOM OF CHANNEL
STA 12+30.00 END TRANSITION SOUTH BANK.
STA. 12+96.30 B.C.
CURVE DATA Δ= 4°10' R= 1000' L= 72.72' T= 36.38'
STA. 13+69.02 E.C.
N59°07'23"E 115.66'
N 54° 57'23"E 1059.14'
EXIST. FENCE TO BE REMOVED
EXIST. 2" H.P GAS MAIN TO REMAIN.
RELOCATE EXIST BARRICADE
EXIST. 66" CMP TO REMAIN.
EXIST BARRICADE TO REMAIN
EXIST. 3/4" GAS LINE TO REMAIN
INSTALL NEW 6' C.L. FENCE & 16' DBLE DRIVE DBLE SWING GATE
R/W
INSTALL NEW FENCE
EXIST. 14' DOUBLE DRIVE DOUBLE SWING C.L. GATE TO BE REMOVED
EXIST 3/4" GAS LINE TO REMAIN
EXIST FENCE TO BE REMOVED
EXIST R/W
EXIST. R.C.P. STORM DRAIN & CONC. OUTLET BOX
EXIST 6" CHAIN LINK FENCE
EXIST 2" PIPE DRAIN
EXIST. "V" DITCH OUTFALL TO BE RELOCATED
62'
EXIST. 6' CHAIN LINK FENCE
EXIST R/W
STA. 17+00 MATCH LINE
SEPULVEDA
J.H. CONNET
DARWIN CONNET
HANSEN ET. AL.
N
0 40 60 80 100
SCALE IN FEET



REFER TO TRACING FOR LATEST REVISION			
REV.	DESCRIPTION	SUB.	APPR.

REFERENCE INFORMATION AND NOTES

1. DBLE MEANS DOUBLE.
2. ALL SECTIONS VIEWED LOOKING UPSTREAM.

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DATE
8-8-75
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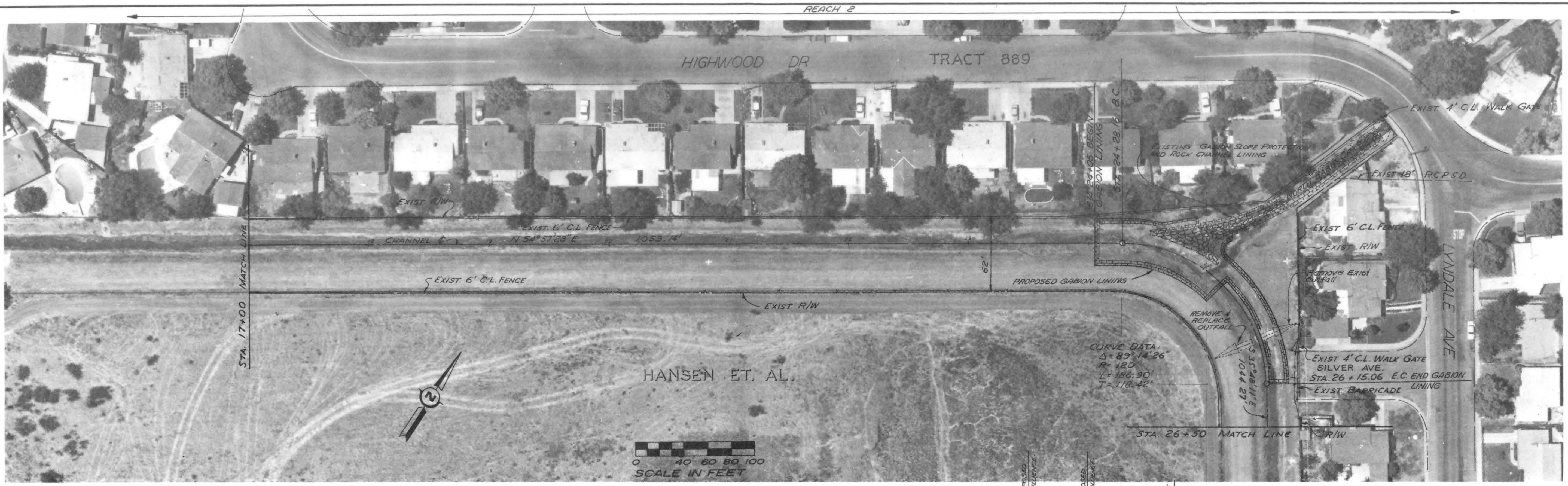
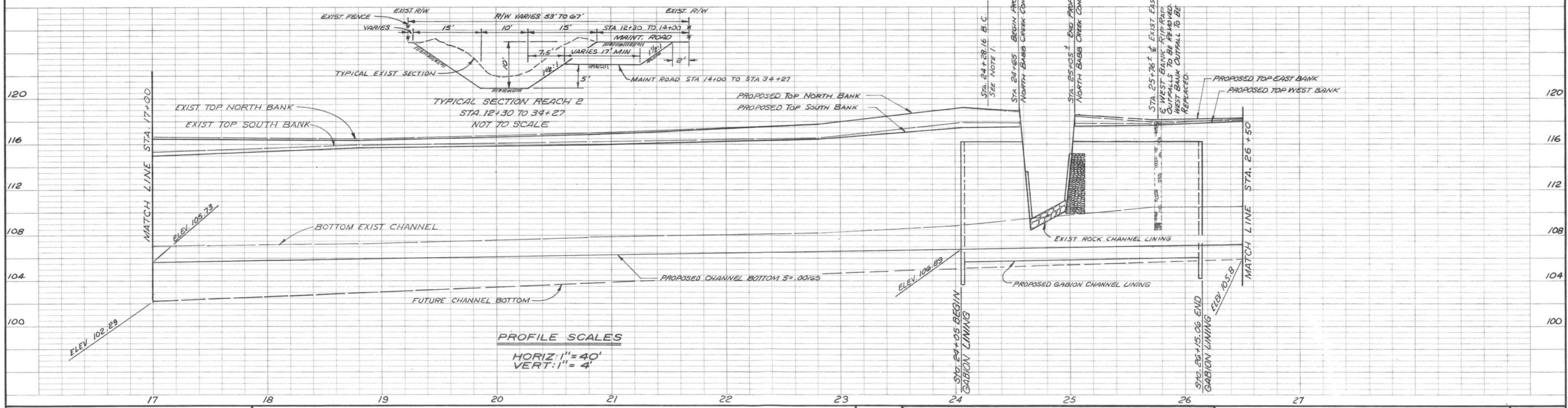
John McGuire
PROJECT ENGINEER
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
Edwin Ferguson
HEAD, DESIGN BRANCH R.C.E. NO. 14455

ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE
AS SHOWN
SHEET
2
OF 10





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1. UPSTREAM FROM B.C. STA. 24+28.16 NORTH BANK BECOMES EAST BANK AND SOUTH BANK BECOMES WEST BANK.

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Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
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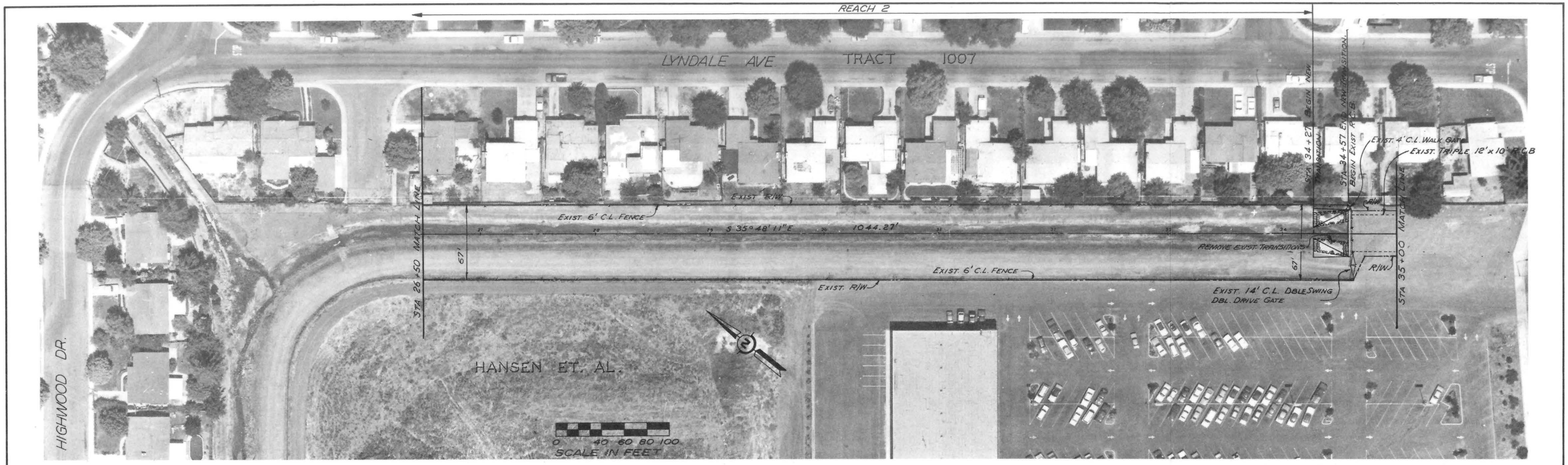
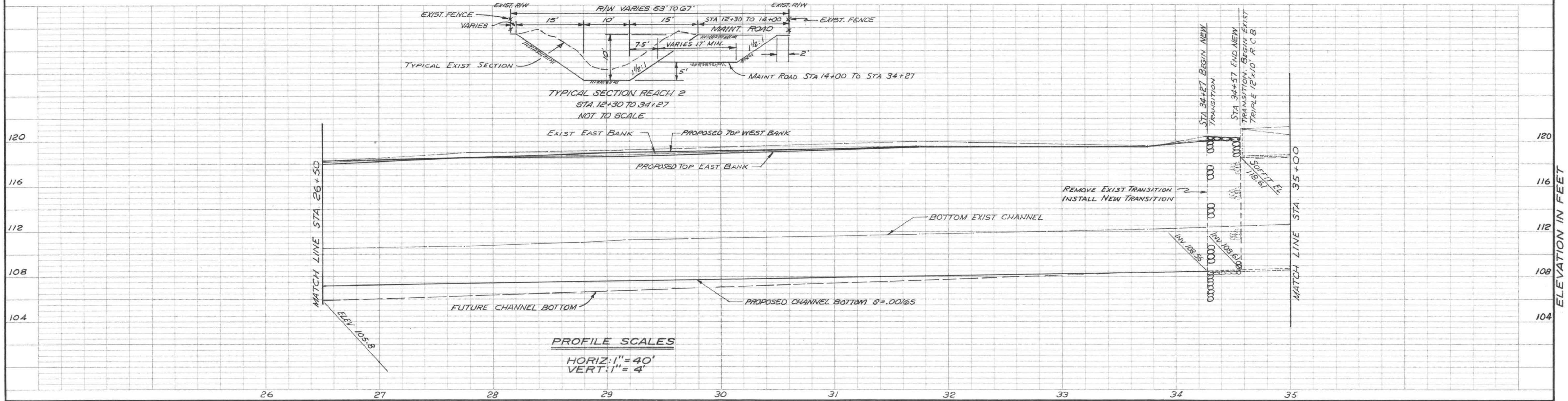
HEAD, DESIGN BRANCH R.C.E. NO. 14455

ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE AS SHOWN
SHEET 3 OF 10





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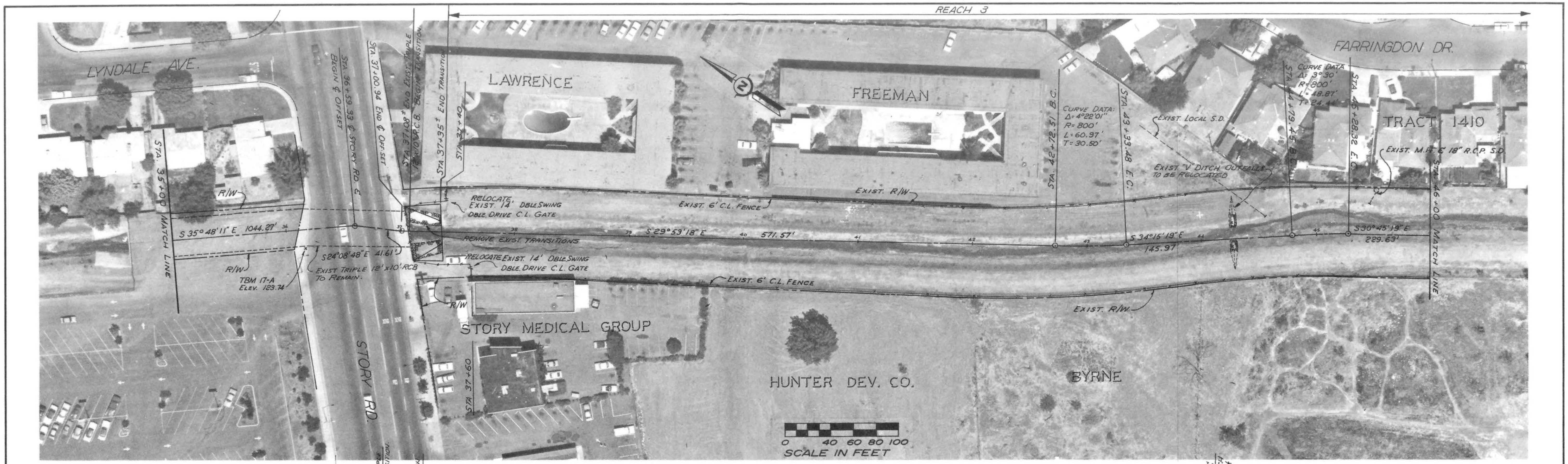
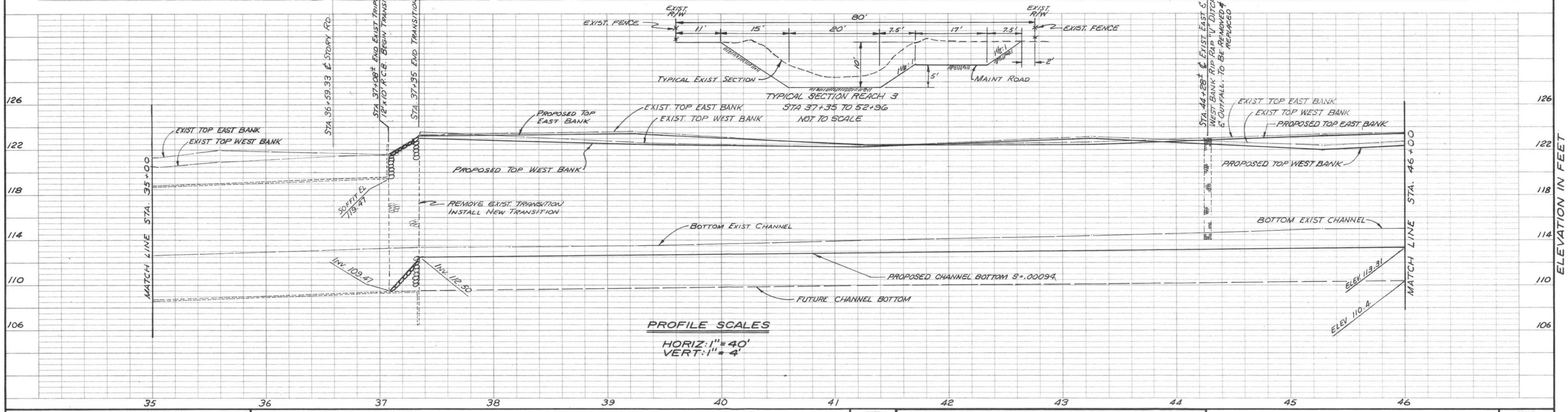
ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE As Shown
SHEET 4 OF 10





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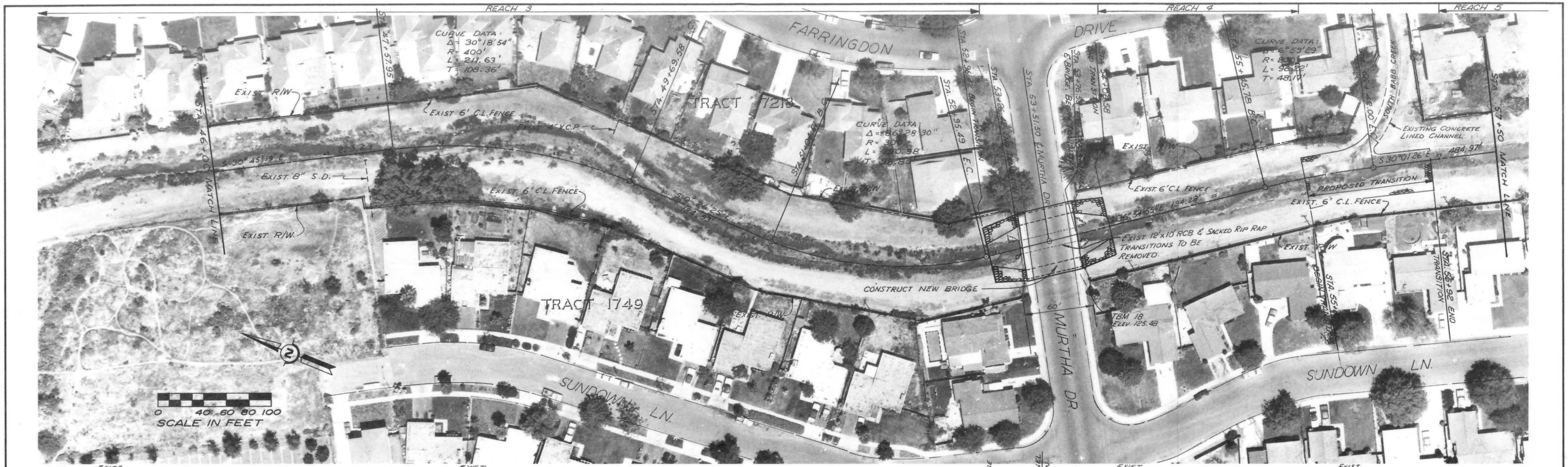
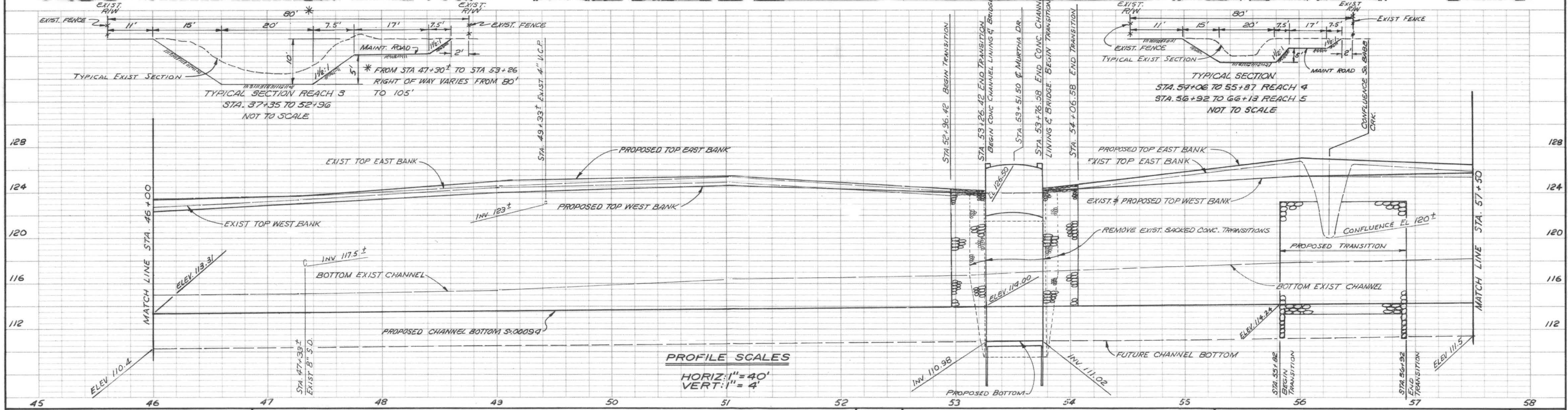
ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE As Shown
SHEET 5 OF 10





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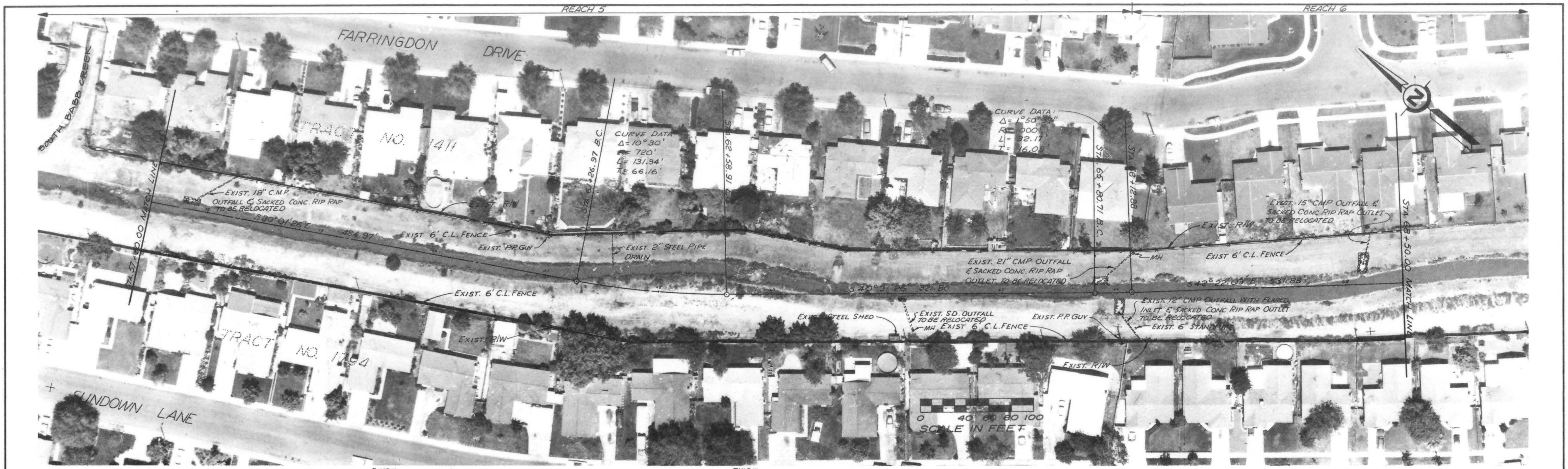
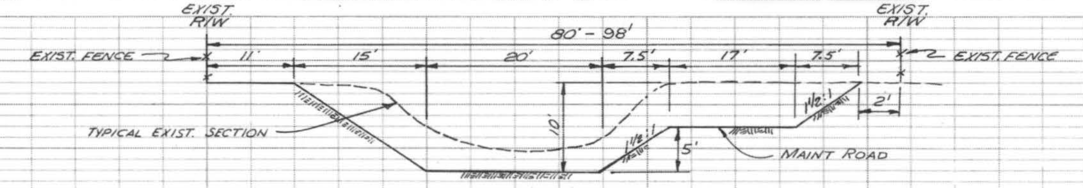
ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

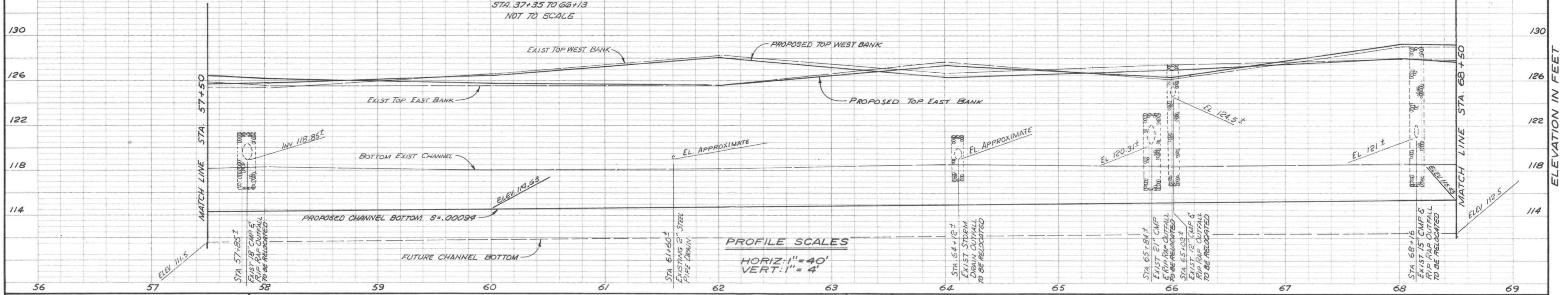
SCALE As SHOWN
SHEET 6 OF 10





TYPICAL SECTION REACH 5
STA. 37+35 TO 66+13
NOT TO SCALE

NOTE
TYPICAL SECTION REACH 6
SEE SHEET 8.



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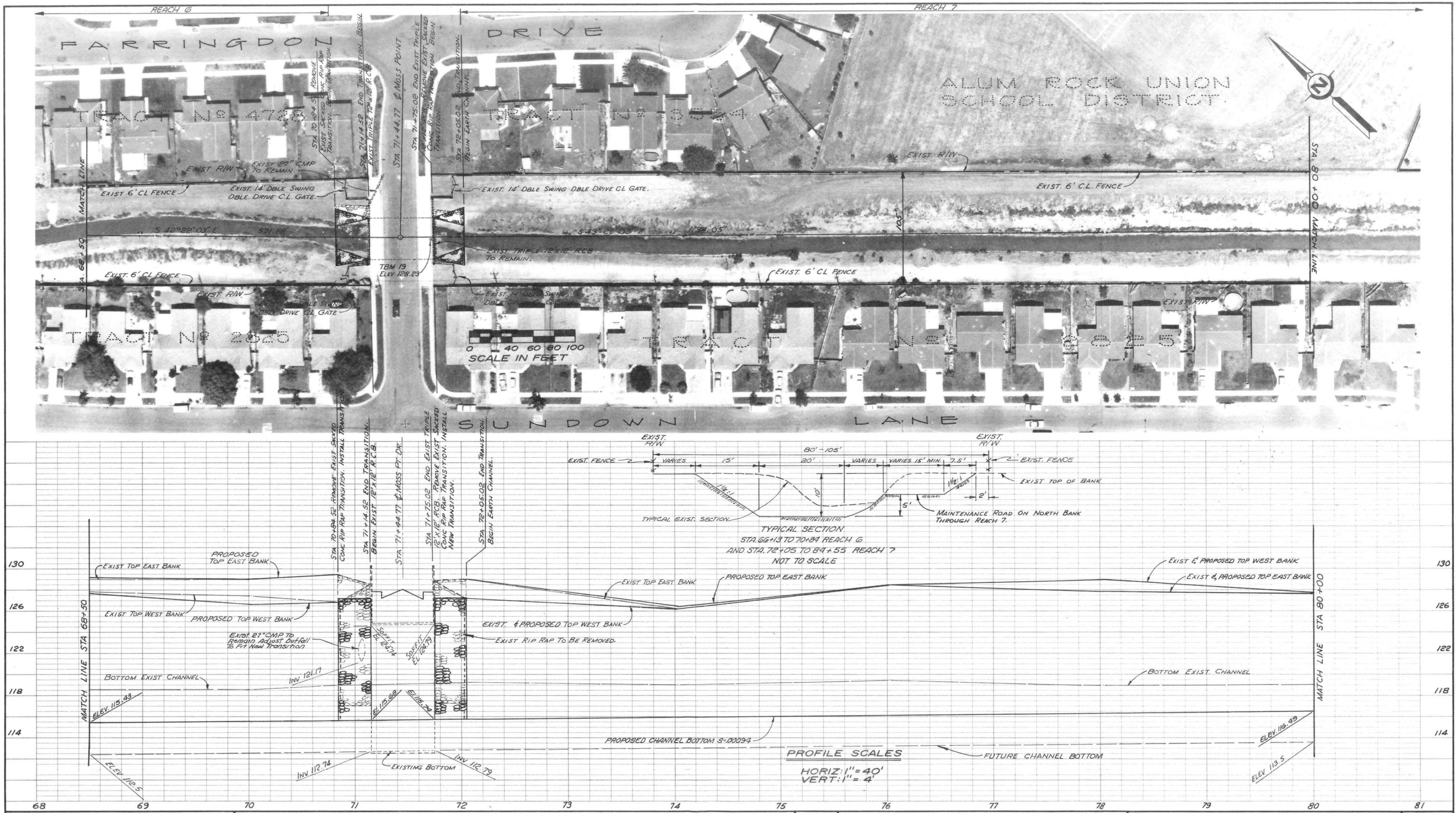
ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE AS SHOWN
SHEET 7 OF 10


REACH 6
REACH 7
FARRINGDON DRIVE
SUNDOWN LANE
TRACT Nº 4728
TRACT Nº 2825
TRACT Nº 2825
ALUM ROCK UNION SCHOOL DISTRICT
N
STA 70+84.52 REMOVE EXIST SACKED CONC RIP RAP TRANSITION. BEGIN TRANSITION.
STA 71+14.52 END TRANSITION. BEGIN EXIST TRIPLE 12'x12' R.C.B.
STA 71+44.77 ℄ MOSS POINT
STA 71+75.02 END EXIST TRIPLE 12'x12' RCB. REMOVE EXIST SACKED CONC RIP RAP TRANSITION. BEGIN TRANSITION.
STA 72+05.02 END TRANSITION. BEGIN EARTH CHANNEL.
EXIST R/W
EXIST 27" CMP TO REMAIN.
EXIST 6' CL FENCE
EXIST. 14' DBLE SWING DBLE. DRIVE C.L. GATE.
EXIST. 14' DBLE SWING DBLE DRIVE CL GATE.
MATCH LINE STA. 68+50
S 42°22'03" E 531.88'
S 43°22'03" E 1134.05'
EXIST. TRIPLE 12'x12' RCB TO REMAIN.
TBM 19 ELEV 128.23
EXIST. 6' CL FENCE
EXIST R/W
EXIST 14' DBLE SWING DBLE DRIVE CL GATE
0 40 60 80 100
SCALE IN FEET
EXIST R/W
EXIST. 6' C.L. FENCE
105'
EXIST. 6' CL FENCE
EXIST R/W
STA. 80+00 MATCH LINE
STA 70+84.52 REMOVE EXIST SACKED CONC RIP RAP TRANSITION. INSTALL TRANSITION.
STA 71+14.52 END TRANSITION. BEGIN EXIST 12'x12' R.C.B.
STA 71+44.77 ℄ MOSS PT. DR.
STA 71+75.02 END EXIST TRIPLE 12'x12' RCB. REMOVE EXIST SACKED CONC RIP RAP TRANSITION. INSTALL NEW TRANSITION.
STA 72+05.02 END TRANSITION. BEGIN EARTH CHANNEL.
EXIST. R/W
EXIST. FENCE
VARIES
15'
20'
80'-105'
VARIES
VARIES 15' MIN.
7.5'
EXIST. R/W
EXIST. FENCE
EXIST TOP OF BANK
1½:1
1½:1
10'
5'
2'
TYPICAL EXIST. SECTION
MAINTENANCE ROAD ON NORTH BANK THROUGH REACH 7.
TYPICAL SECTION
STA. 66+13 TO 70+84 REACH 6
AND STA. 72+05 TO 84+55 REACH 7
NOT TO SCALE
130
126
122
118
114
PROPOSED TOP EAST BANK
EXIST TOP EAST BANK
EXIST TOP WEST BANK
PROPOSED TOP WEST BANK
Exist. 27" CMP To Remain Adjust Outfall To Fit New Transition
SOFFIT EL 124.74
SOFFIT EL 124.79
EXIST. & PROPOSED TOP WEST BANK
EXIST RIP RAP TO BE REMOVED.
INV 121.17
BOTTOM EXIST CHANNEL
MATCH LINE STA 68+50
ELEV. 115.43
EL 115.68
EL 115.74
ELEV 112.5
INV 112.74
EXISTING BOTTOM
INV 112.79
EXIST TOP EAST BANK
PROPOSED TOP EAST BANK
EXIST & PROPOSED TOP WEST BANK
EXIST & PROPOSED TOP EAST BANK
BOTTOM EXIST. CHANNEL
PROPOSED CHANNEL BOTTOM S=.00094
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
FUTURE CHANNEL BOTTOM
ELEV. 116.49
ELEV 113.5
MATCH LINE STA 80+00
ELEVATION IN FEET
68
69
70
71
72
73
74
75
76
77
78
79
80
81

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John Mc Guire
PROJECT ENGINEER
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
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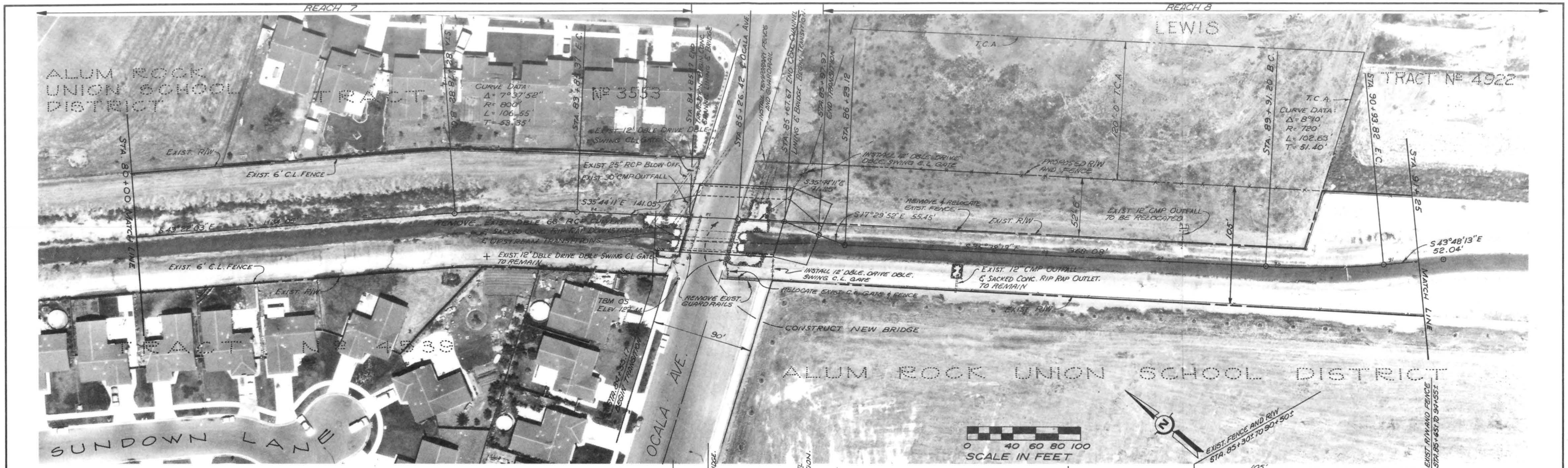
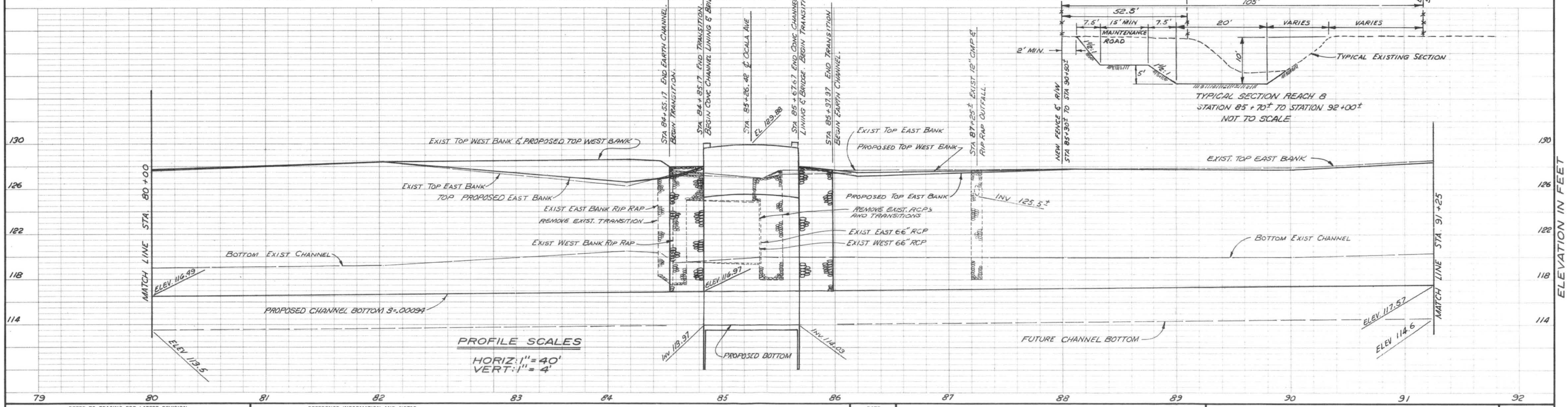
HEAD, DESIGN BRANCH R.C.E. NO. 14455

ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE As Shown
SHEET 8 OF 10


REACH 7
REACH 8
ALUM ROCK UNION SCHOOL DISTRICT
TRACT Nº 3553
CURVE DATA: Δ= 7°37'52" R= 800' L= 106.55' T= 53.35'
STA. 80+00 MATCH LINE
STA. 82+78.88 B.C.
STA. 83+85.37 E.C.
STA. 84+85.17 END TRANSITION. BEGIN CONC. CHANNEL LINING & BRIDGE
STA 85+26.42 ℄ OCALA AVE.
INSTALL TEMPORARY FENCE AND GUARDRAIL
STA. 85+67.67 END CONC. CHANNEL LINING & BRIDGE. BEGIN TRANSITION.
STA. 85+97.97 END TRANSITION
STA. 86+23.12
EXIST. R/W
EXIST. 6' C.L. FENCE
EXIST. 12' DBLE DRIVE DBLE SWING CL GATE
EXIST. 25" RCP BLOW-OFF
EXIST. 30" CMP OUTFALL
S35°44'11"E 141.05'
S43°22'03"E 1134.05'
REMOVE EXIST. DBLE 66" RCP CULVERT & SACKED CONC. RIP RAP DOWNSTREAM & UPSTREAM TRANSITIONS.
EXIST. 12' DBLE DRIVE DBLE SWING CL GATE TO REMAIN
EXIST. 6' C.L. FENCE
EXIST. R/W
TBM OS ELEV. 127.44
REMOVE EXIST. GUARDRAILS
CONSTRUCT NEW BRIDGE
90'
TRACT Nº 4539
SUNDOWN LANE
OCALA AVE.
STA. 84+55.17 BEGIN TRANSITION
LEWIS
T.C.A.
120'-0" T.C.A.
INSTALL 12' DBLE. DRIVE DBLE. SWING C.L. GATE
PROPOSED R/W AND FENCE
S35°44'11"E 41.25'
REMOVE & RELOCATE EXIST. FENCE
S17°29'52"E 55.45'
EXIST. R/W
52.6'
EXIST. 12" CMP OUTFALL TO BE RELOCATED
S35°38'13"E 368.08'
105'
INSTALL 12' DBLE. DRIVE DBLE. SWING C.L. GATE
EXIST. 12" CMP OUTFALL & SACKED CONC. RIP RAP OUTLET. TO REMAIN
RELOCATE EXIST. C.L. GATE & FENCE
EXIST. R/W
STA. 89+91.20 B.C.
T.C.A.
CURVE DATA: Δ= 8°10' R= 720' L= 102.63' T= 51.40'
TRACT Nº 4922
STA. 90+93.82 E.C.
STA. 91+25 MATCH LINE
S43°48'13"E 52.04'
0 40 60 80 100 SCALE IN FEET
N
EXIST. FENCE AND R/W STA. 85+30± TO 90+50±
EXIST. R/W AND FENCE STA. 85+65± TO 90+55±



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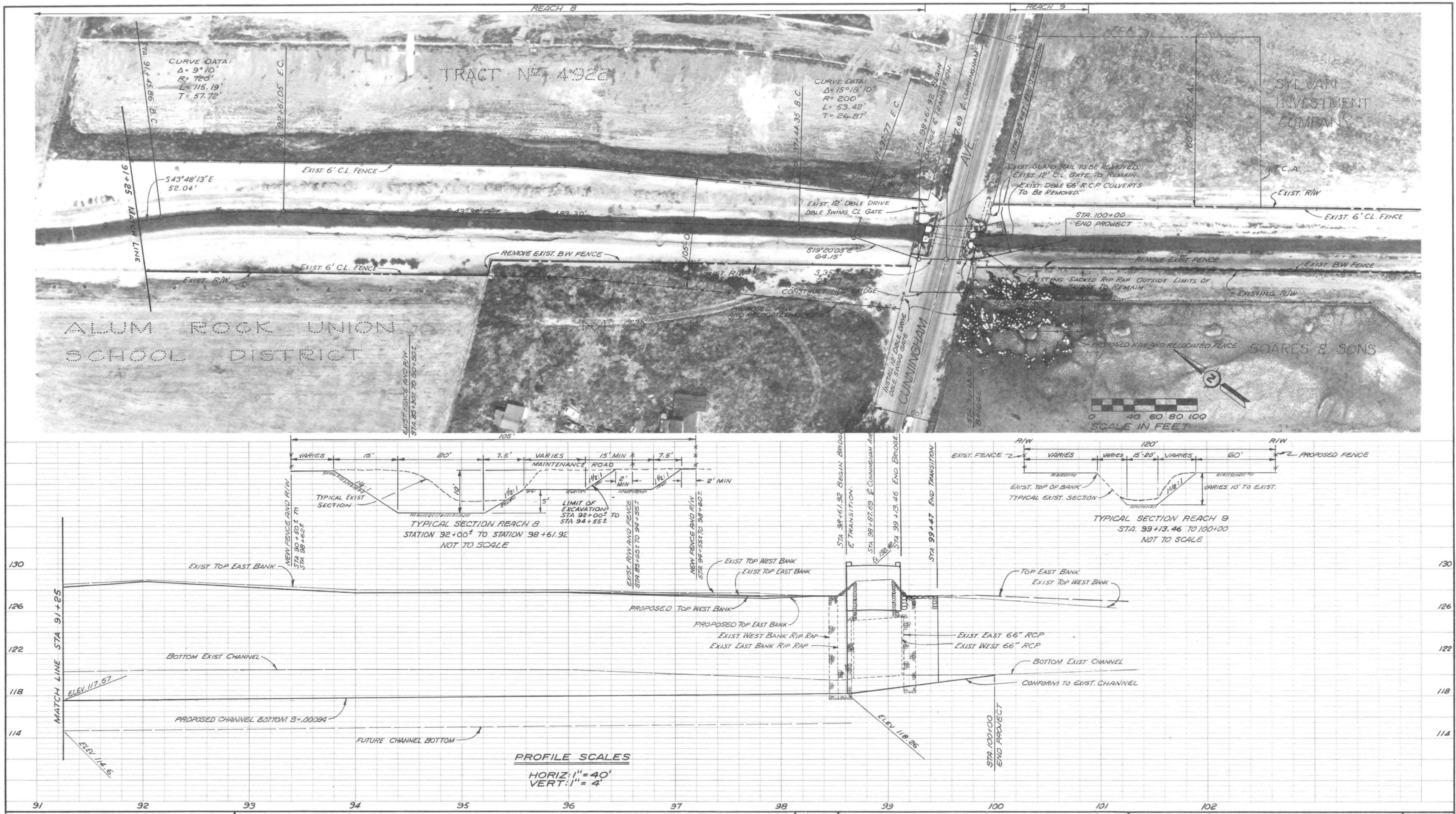
HEAD, DESIGN BRANCH R.C.E. NO. 14455

ZONE E-1
LOWER SILVER CREEK
PLAN AND PROFILE

SCALE AS SHOWN
SHEET 9 OF 10



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SCALE AS SHOWN
SHEET 10 OF 10